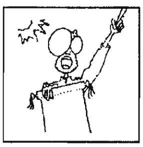
Next, $8 \in P$ (for $8 = 1 + 7$), $9 \in P$ (for $9 = 2 + 7$) and $10 \notin P$. After this we find that all the integers 'fall' into P; i.e., all $n \geq 11$ lie in P. We only need to check that $11 (= 1 + 10)$, $12 (= 2 + 10)$ and $13 (= 5 + 8)$ lie in P. After this we can write $n = 3 + (n - 3)$ for any $n \geq 14$.

So the required set is $P = \mathbf{N} \setminus \{1, 2, 4, 7, 10\} = \{3, 5, 6, 8, 9, 11, 12, 13, 14, 15, 16, \ldots\}$.

If we replace the 'two' in the problem statement by 'three' we get another interesting problem; now we want a subset P_3 of $\mathbf{N}$ such that a number is in P_3 if and only if it is a sum of three distinct integers in P_3, *or* a sum of three distinct integers not in P_3. Once again, a maximal such set may be found; we get, writing $\overline{P_3}$ for the set $\mathbf{N} \setminus P_3$,

$$\overline{P_3} = \{1, 2, 3, 4, 5, 13, 14, 15\}.$$



Information and Announcements

Nobel Prize 2003

Physics – *"for pioneering contributions to the theory of superconductors and superfluids"* to

Alexei A Abrikosov, Argonne National Laboratory, Argonne, Illinois, USA,
Vitaly L Ginzburg, P N Lebedev Physical Institute, Moscow, Russia, and
Anthony J Leggett, University of Illinois, Urbana, Illinois, USA.

Chemistry – *"for discoveries concerning channels in cell membranes"* to

PeterAgre, Johns Hopkins University School of Medicine, Baltimore, USA – *"for the discovery of water channels"* and
Roderick MacKinnon, Howard Hughes Medical Institute, The Rockefeller University, New York, USA – *"for structural and mechanistic studies of ion channels"*.

Physiology or Medicine – *"for magnetic resonance imaging"* to
Paul C Lauterbur, University of Illinois Urbana, IL, USA, and
Peter Mansfield, University of Nottingham, School of Physics and Astronomy Nottingham, United Kingdom.